

# Mathematical modeling of large elastic-plastic deformations

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## Abstract

© 2014 L. U. Sultanov and R. L. Davydov. The paper is devoted to development and numerical implementation for a method for investigation of stress-strain state of the solids with large elastic-plastic deformations. Calculation algorithm is based on the linearized equation of virtual work, defined to actual state. The arc-length method is used. A spatial discretization is based on the finite element method. The developed algorithm of investigation of large elastic-plastic deformations is tested on the solution of the necking of circular bar.

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## Keywords

Finite element Method, Large deformations, Nonlinear elasticity, Plasticity